

Specification:

Replace the first full paragraph on page 3 with the following rewritten paragraph:

As digital circuits become more and more complex while integrated circuit technologies grow, equivalence checking methods and tautology checking methods often fail to handle the complex Boolean functions used to represent digital circuits. The failures are either due to unreasonably long run times or due to requiring unreasonably large amounts of computer memory. These methods (such as U.S. patent No. 5,243,538 and others using BDDs) give meaningful conclusions only at the end, and therefore they give no meaningful conclusions at all if they fail before reaching the end. A truth table of a Boolean function involving 100 Boolean variables can fill more than 1000 trillion storage devices if each of such storage devices can store 1000 trillion rows of the truth table, which is much larger than most modern hard disks or tapes. Just touching such amount of data at the speed of 30 billion rows per second (faster than the modern speed of accessing registers) takes more than a trillion years per pass. It is well known that BDDs of many practical Boolean functions have sizes similar to these truth tables'. This amount of data is similar to the amount of data needed for any method listing the function's output values at all points in the input space. Therefore, any method involving the inspection of output values of a complex Boolean function is impractical if the function has more than 100 variables. Some of these methods are related to adjacency theorem.